PTO's Future Electronic Workplace

October 16, 1997

Introduction

- PTO's Future Electronic Workplace
  - Conversion of paper applications to electronic format
  - Electronic filing of patent applications
  - Electronic communication with applicants
  - Electronic processing of patent applications

Introduction (cont.)

- Describe future PTO systems
  - Near-term initiatives to convert paper to electronic format
  - Longer-term initiatives for electronic filing and electronic processing of applications through the Distributed Object Computation Testbed (DOCT)

First Step

- Paper documents will always be accepted
- Convert paper applications to electronic format
- Patent Image Capture System (PICS) operational in April 1997
- Electronic communication with applicant through Internet e-mail currently available

Next Steps

- Create intelligent documents from scanned images
  - Capture bibliographic data - 1998
  - Provide receipt notification over the Internet - 1998
  - Perform automated initial classification and security screening - 1998
  - Capture follow-on applicant papers and office actions - 2000
- Conduct Patent Reengineering Prototypes (1999)
  - Electronic filing
  - Electronic processing of applications

Next Steps (cont.)

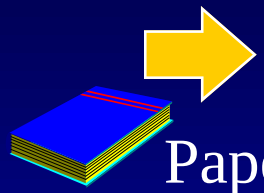
- Begin electronic filing of patent applications - 2002
- Electronic workplace deployed to one Industry Sector - 2002
- PTO electronic workplace achieved -2003

Briefing Structure

- Walk through the basic functions of filing and application management in an electronic environment
- Show how research will be leveraged to support PTO's future electronic workplace
- Describe near and longer-term initiatives

Paper Applications

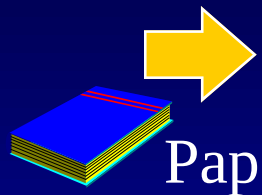
Applicant



Paper Application

Conversion of Paper

Applicant

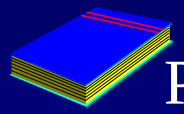


Paper Application

Capture Page Images	OCR Text	Capture Document Information	Transform to Manageable Document

Electronic Management

Applicant



Paper Application

Capture Page Images	OCR Text	Capture Document Information	Transform to Manageable Document

Electronic Pre-Exam

Electronic Examination		
Search	Claims	Tools
Document Management	Workflow Management	

Electronic Filing

Applicant

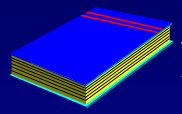
Electronic Application

Electronic Mailroom → Electronic Pre-Exam → Electronic Examination

Search	Claims	Tools
Document Management	Workflow Management	

Fully Electronic Patent Process

Applicant



Paper Application

Electronic Application

Capture Page Images | OCR Text | Capture Document Information | Transform to Manageable Document

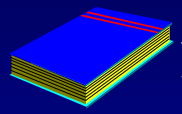
Electronic Mailroom → Electronic Pre-Exam → Electronic Examination

Search | Claims | Tools

Document Management | Workflow Management

Implementation

Applicant



Paper Application

PICS

ACRS
(OCR, bib data)

ACRS/ DOCT
(autotag)

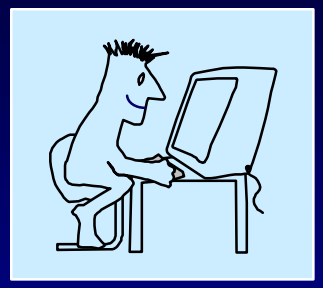
Electronic Application

EPAFS/ DOCT

ACRS/ DOCT
(class, L&R)

PREP/TEAM DOCT

Patent Image Capture System (PICS)



Applicant

Capture Page Images

ACRS
(OCR, bib data)

ACRS/ DOCT
(autotag)

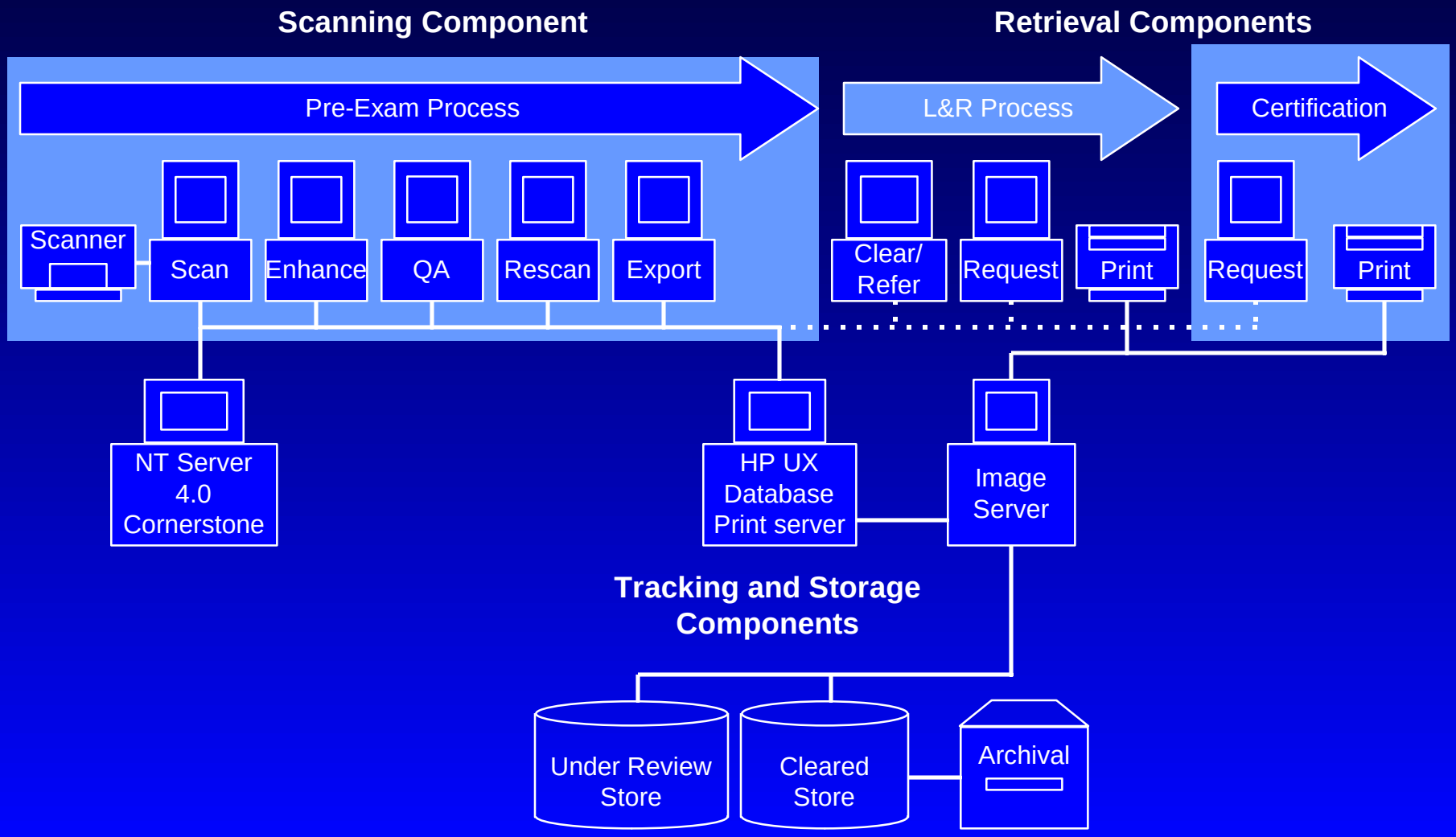
PICS

EPAFS/ DOCT

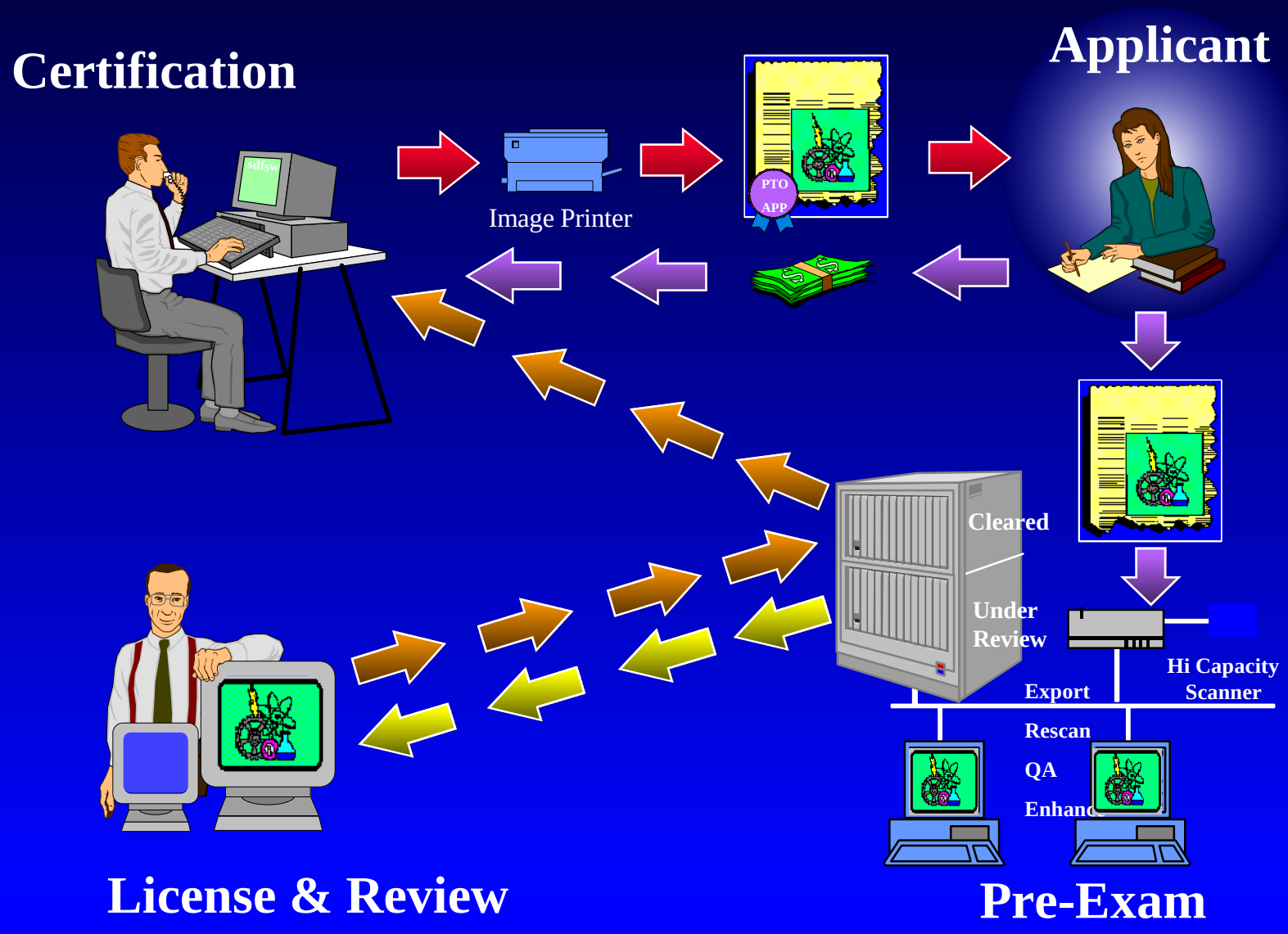
ACRS/ DOCT
(class, L&R)

PREP/TEAM DOCT

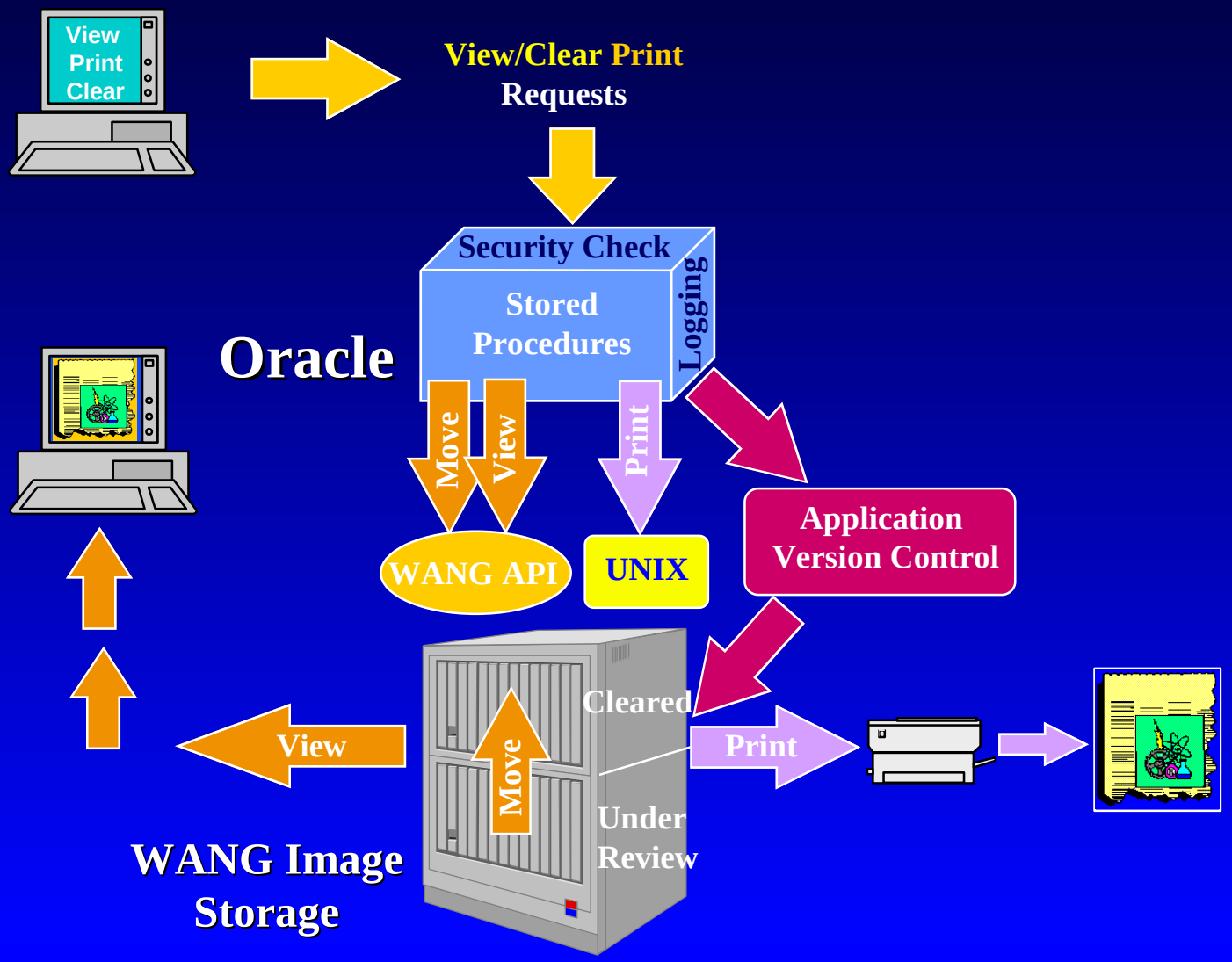
PICS Design


Scanning Component
Retrieval Components
Pre-Exam Process
L&R Process
Certification
Scanner
Scan
Enhance
QA
Rescan
Export
Clear/
Refer
Request
Print
Request
Print
NT Server
4.0
Cornerstone
HP UX
Database
Print server
Image
Server
Tracking and Storage
Components
Under Review
Store
Cleared
Store
Archival

PICS Operation



PICS Security



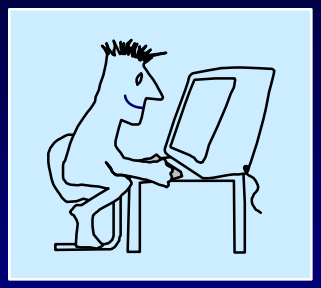
PICS Benefits

- Eliminates microfiche operations
- Images indexed and tracked
- Provides on-line access to images for Certification
- Provides on-line access to images for L&R screening and review

PICS Summary

- Initial paper document capture capability
- Tests processes
- Establishes input stream for paper document input to electronic management
- Establishes infrastructure for electronic management

Application Capture and Review System (ACRS)



Applicant

PICS

OCR Text

Capture Document Information

ACRS/ DOCT (autotag)

ACRS (OCR, bib data)

EPAFS/ DOCT

Electronic Pre-Exam

ACRS/ DOCT (class, L&R)

PREP/TEAM DOCT

What is ACRS ?

- “ Application Capture and Review System”
- A production ICR system
- A modular, distributed, document text capture, indexing, and processing functionality

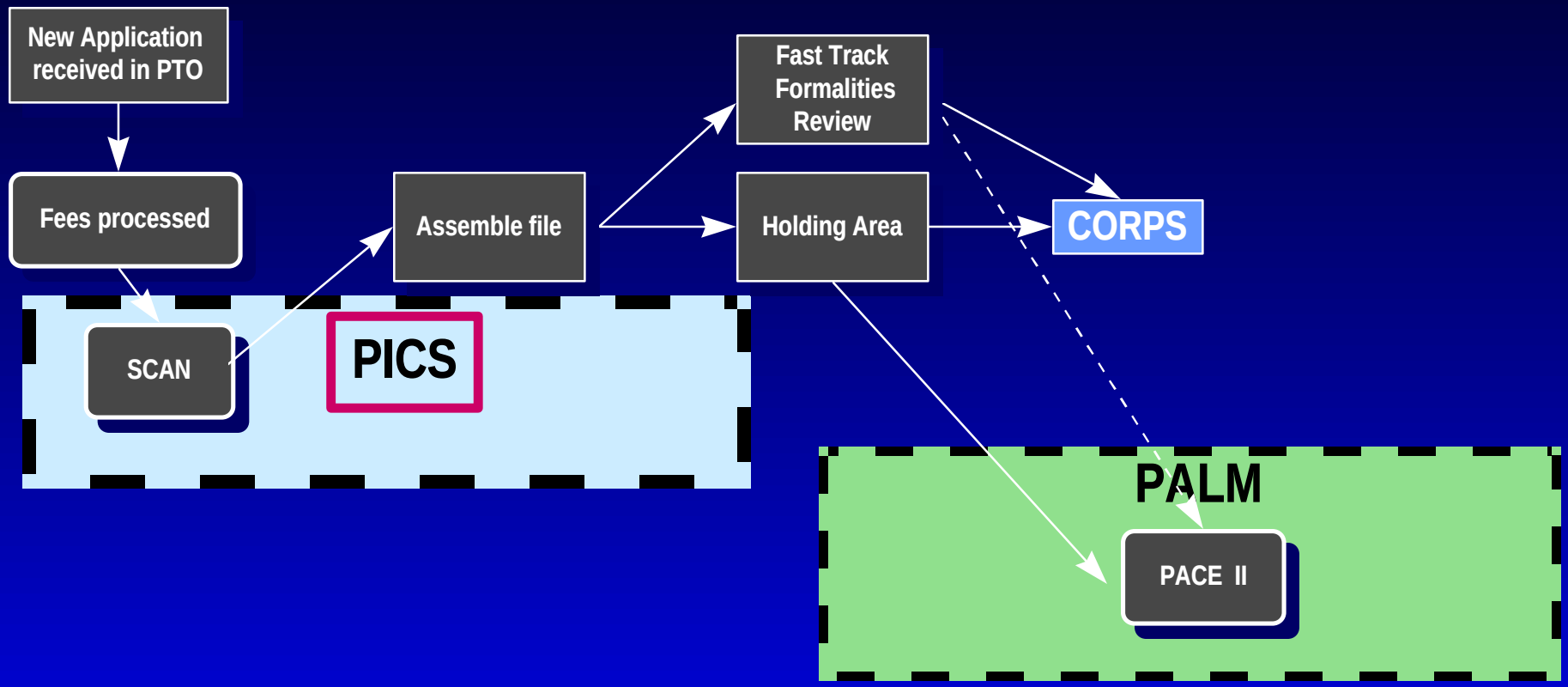
ACRS early production

- Each PICS scanning group will use ACRS to capture full text of new applications, and to read applicant-formatted bibliographic data and feed it to PALM
- Each PICS scanning group will use ACRS to capture indexing of sections of new patent applications, if readable

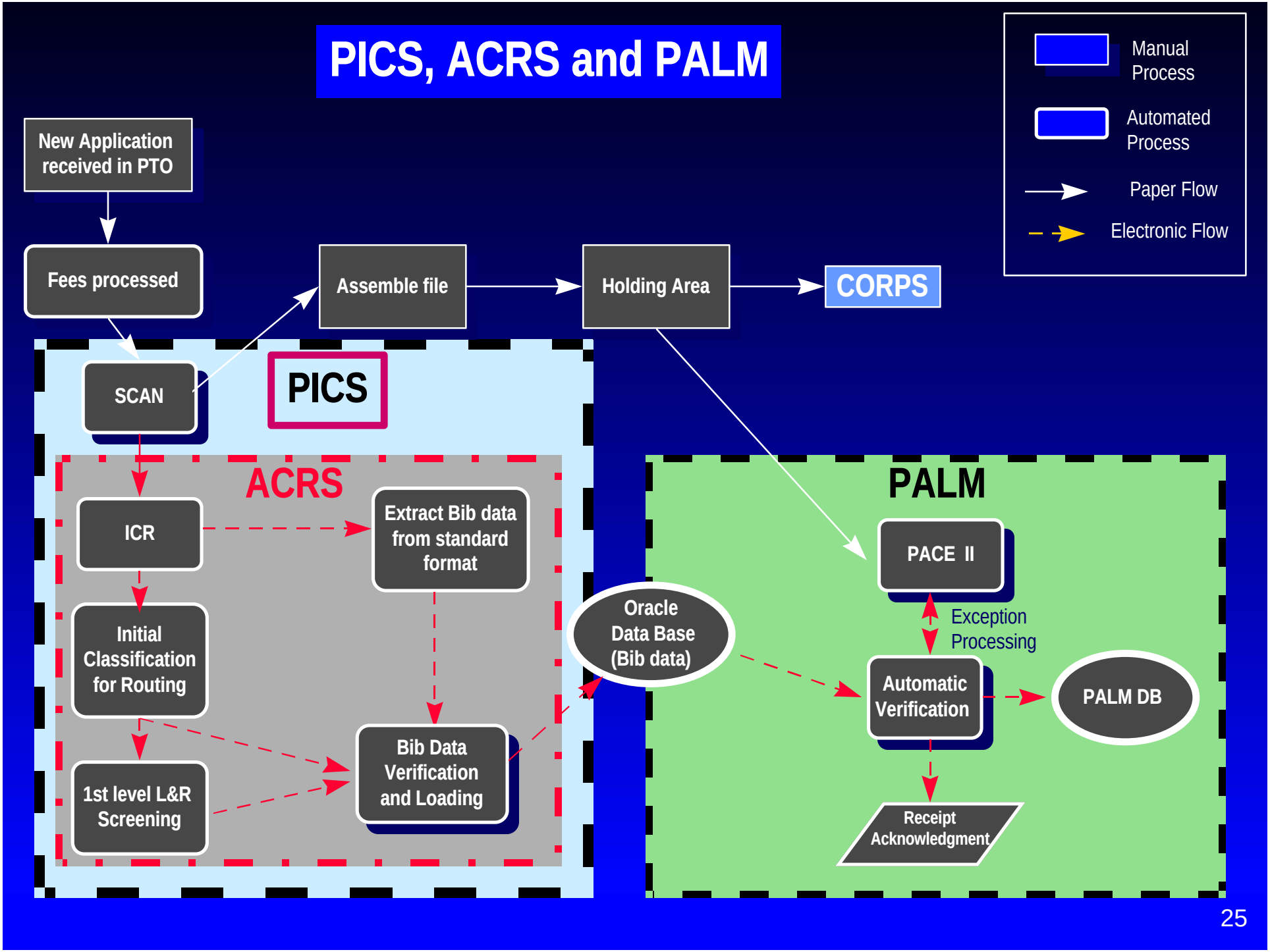
ACRS later production

- ACRS will perform automatic initial classification to the US class level for automatic routing to the correct Technology Center/Group
- ACRS will perform automatic first level L&R screening to designate the appropriate applications for L&R review

PICS and PACE/PALM



PICS, ACRS and PALM



ACRS: Capture Bibliographic Data

- Bibliographic data sheet
- ACRS OCRs the data sheet
- Validated against image
- Simple tagged format

Patent Application Data Entry Format Objectives

- To offer a flexible means to collect information for each individual patent application
- To provide a format that is easy to use
- To provide accurate application receipt information to our customers
- To provide a standard presentation for application information
- To expedite electronic capturing of information provided by customers

Tabular Format with Fixed Tags: Example

Correspondence Information

Correspondence Customer Number ::	**123456789**
Name Line One ::	**Odin, Thor,**
Name Line Two ::	**Fafner & Associates**
Address Line One ::	**12345 Sturm Avenue**
Address Line Two ::	**Suite 3300**
City ::	**Vienna**
U.S. State ::	**VA**
Country ::	**USA**
Postal or Zip Code ::	**55555**
Telephone ::	**(703) 555-1212**
Fax ::	**(703) 555-2121**
E-Mail ::	**Odin@valhalla.com**

Tag identifying the information at left margin followed by two colons. Information on same line with white space after the colons.

Templates for standard word processors available with the information packet.

Patent Application Data Entry Format Benefits

- Higher percentage of correct filing receipts mailed
- Notification of application receipt provided in a more timely manner
- Ensures information provided to Patent Office information systems is correct

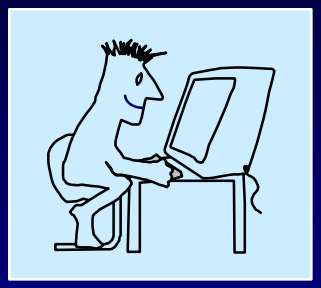
ACRS: Automated Presumptive Classification

- Goal is automated forwarding of applications to Technology Centers and Groups
- Currently testing of vendor products which classify based on text content
- Initial results are very accurate

ACRS Future

- PICS/ACRS technology will be used to support PCT automation efforts
- ACRS technology will be used later to validate electronic filings
- ACRS will later automate formalities review and other pre-examination functions

Tools for Electronic Application Management (TEAM)



Applicant

PICS

ACRS
(OCR,
bib data)

ACRS/
DOCT
(autotag)

EPAFS/
DOCT

ACRS/
DOCT
(class, L&R)

Electronic Examination

Search | Claims | Tools

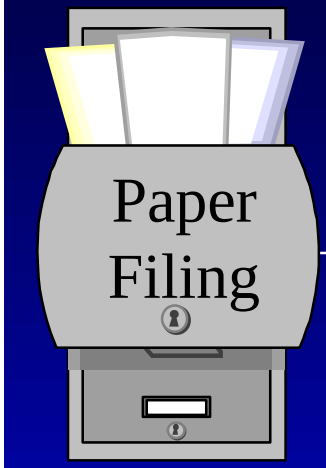
Workflow
nagement

PREP/TEAM
DOCT

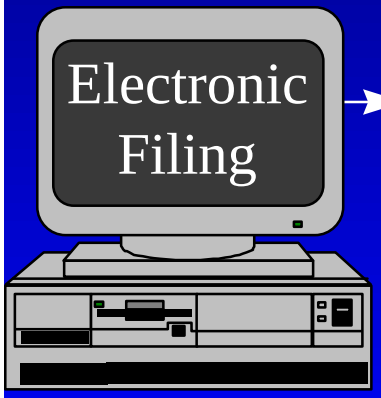
Patent ReEngineering Prototype (PREP)

- PREP1
  - Established viability of Electronic File Wrapper (EFW)
  - First step towards electronic document correspondence
  - Utilized available COTS products for rapid development
  - Provided a starting point for development of examination processes utilizing an EFW
- PREP 2
  - Electronic filing of Standard Generalized Markup Language (SGML) tagged documents

Tools for Electronic Application Management (TEAM)



PICS



Electronic Mailroom

ACRS

TEAM

Publications

Functions of TEAM

- Create An Electronic File Wrapper
- Automatic Amendment Entry
- Increase Efficiency of Workflow
- More Timely Office Actions
- Electronic Communications
- Automated Formatting for Publications

TEAM Components & Interfaces

TEAM

Search:

- Patent text & image (APS)
- Global Patents (GPI, PCT)
- Other Prior Art (NPL)
- Library Data (STIC)
- Biotech (ABSS)

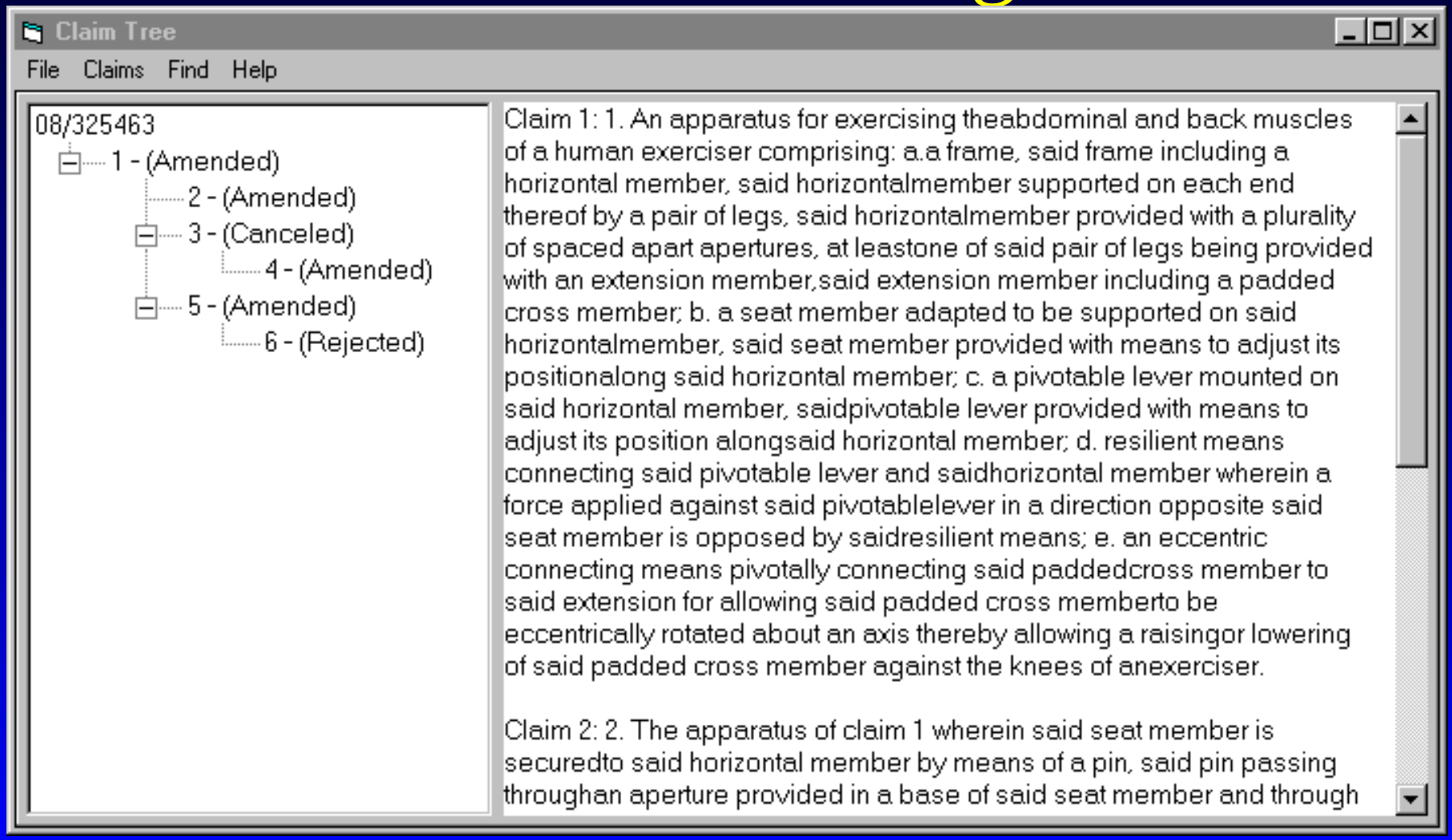
Examiner Tools:

- Docketing
- Office Actions (OACS)
- Forms
- Claims Management
- EFW Management
- Search Results Management
- Auditing and Security
- Notes

Operations Data:

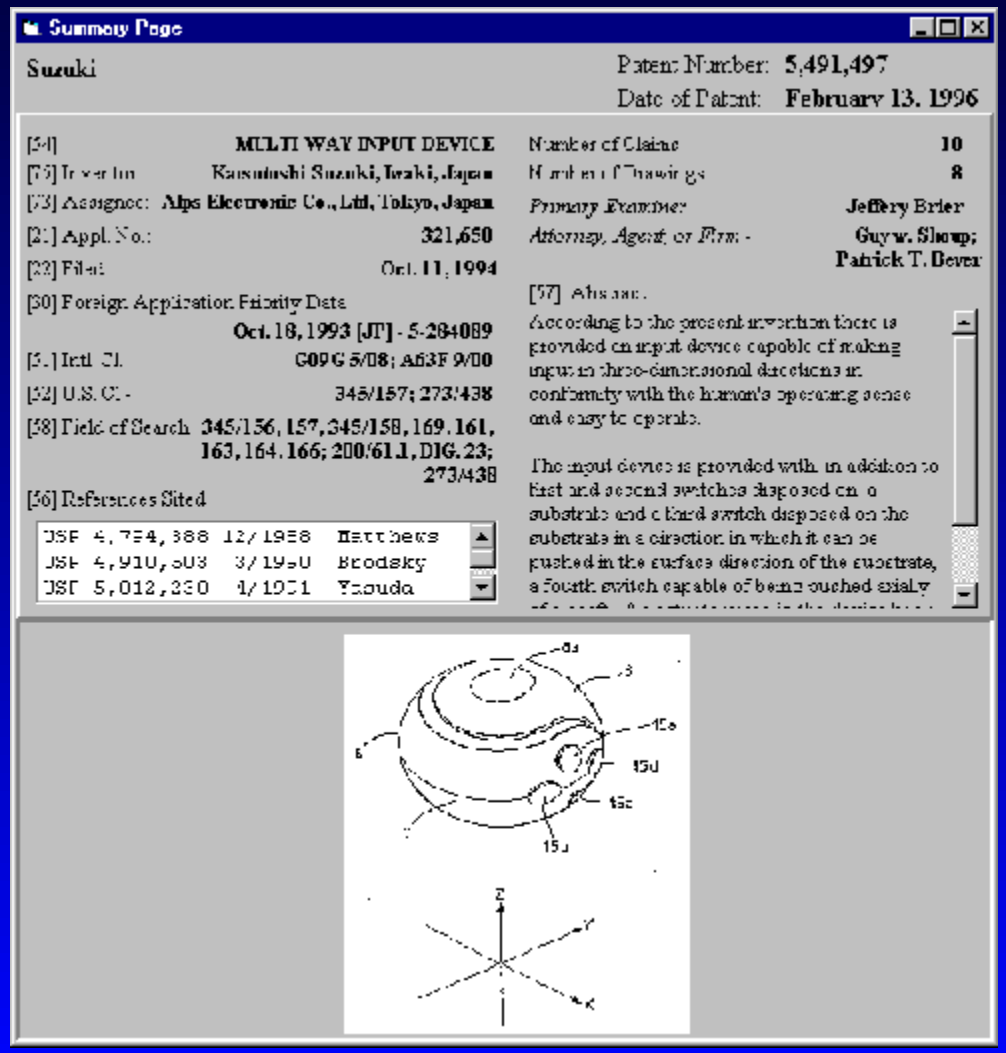
- Classification (CDS)
- Financial (RAM)
- Application Status (PALM)

TEAM: Claim Management



Based on analysis of individual claim text extracted from SGML-based patent application document

TEAM: Summary View

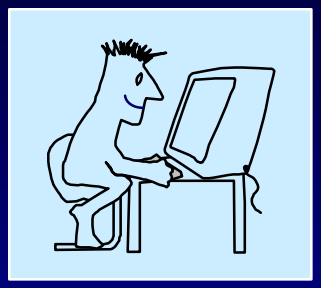


User-configurable collection of basic file wrapper information. Based on SGML documents and standard data tables. Also demonstrates ability to collate data for publication.

Applicant/User Benefits of TEAM

- Increased filing ease and accuracy
- More timely and efficient processing
- More timely and accurate processing status reporting
- Increased legibility and quality in reproduction and printing
- More timely and accessible patent information

Electronic Filing/Electronic Mailroom



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(class, L&R)

PREP/TEAM
DOCT

EPAFS History

- National Performance Review
- Government Information Technology Services Board
- Implementations of Administration policy re encryption key recovery
- Demonstration projects including Key Recovery
  - pilot project to learn from
  - PTO has 2 of 13
- International user group
  - national applications
  - PCT applications

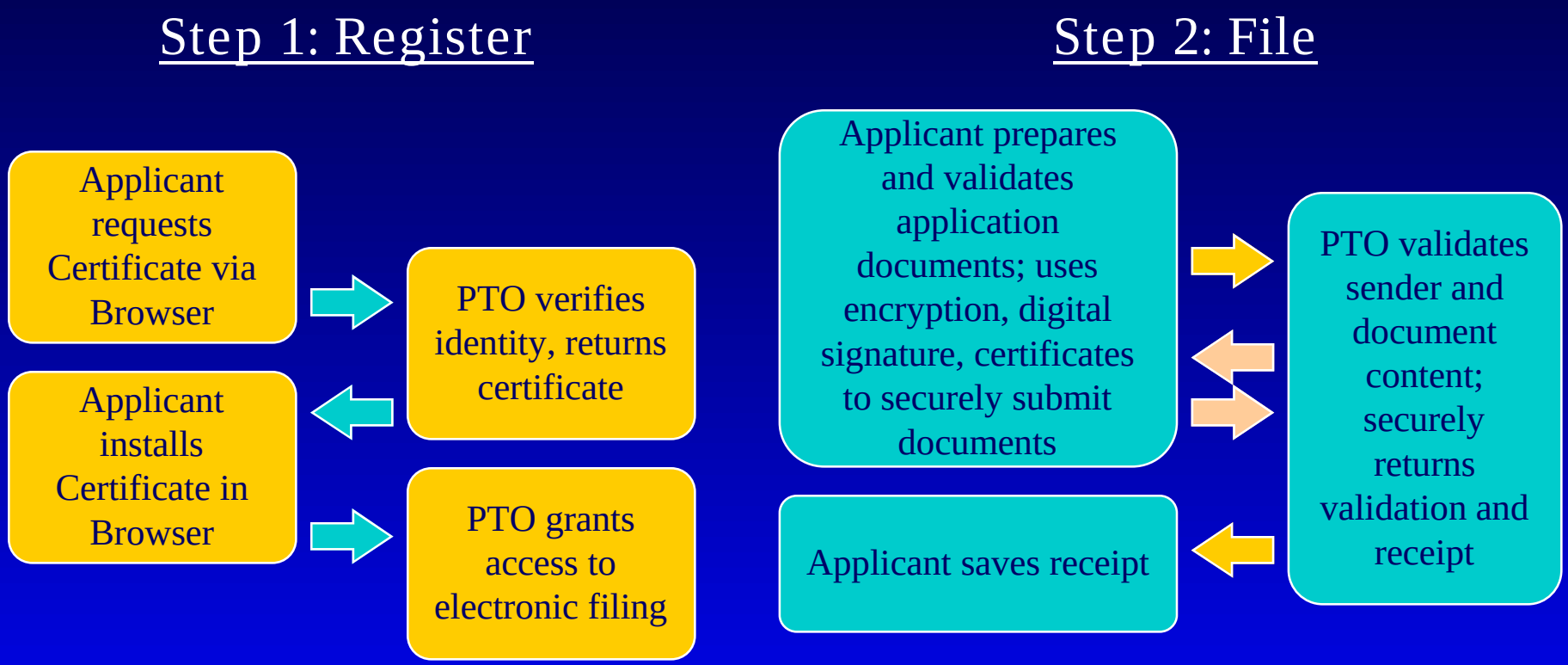
Electronic Mailroom Security

- Authentication: Both parties have positive identification of the other
  - Digital Certificates required
- Access Control: Information is available only to authorized parties
  - Digital Certificate controlled
- Confidentiality: No third party can read the transaction
  - Encryption
    - Secure Sockets Layer for sessions
    - Strong encryption for complete application
    - Strong encryption for storage
- Message Integrity: The message has not been tampered with
  - Secure digital hash
- Non-Repudiation: Neither party can deny involvement
  - Digital Signature
  - Acknowledgment

Electronic Mailroom Approaches

- EPAFS and DOCT
- Both using same underlying technologies
- Complementary approaches; both under investigation

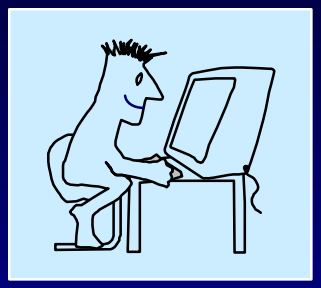
Two-Step Process



Electronic Mailroom Summary

- Basic technologies available
- A variety of implementation approaches
- Legal and policy issues
  - National and international effort
- First implementation planned for Trademarks in October 1998
  - Certificate interoperability
  - Secure electronic transaction (SET)

DOCT Research



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PREP/TEAM
DOCT

Electronic
Mailroom

EPAFS/
DOCT

ACRS/
DOCT
(class, L&R)

Search

Document
Management

Workflow
Management

DOCT History

- DARPA/PTO Metacomputing Testbed BAA
- Supercomputers at SDSC, NCSA, SAIC
- DOCT features:
  - testbed/laboratory: not a system
  - high-performance computers and communications links (the “metacomputer”)
  - bi-directional communications between “PTO” and “applicant”
  - Standards-based, working with complex scientific documents as objects

DOCT Infrastructure

Electronic Filers (Applicants) and the Public

Internet

USPTO

Metacomputing NCSA

CALTECH

ATDnet

Metacomputing SAIC

Metacomputing & Archive SDSC

vBNS

Network Virginia

ODU CCPO

U. Virginia

Network Node NCCOSC

AAInet

Virginia Tech (Collaborator)

ODU VMASC (Collaborator)

ESnet

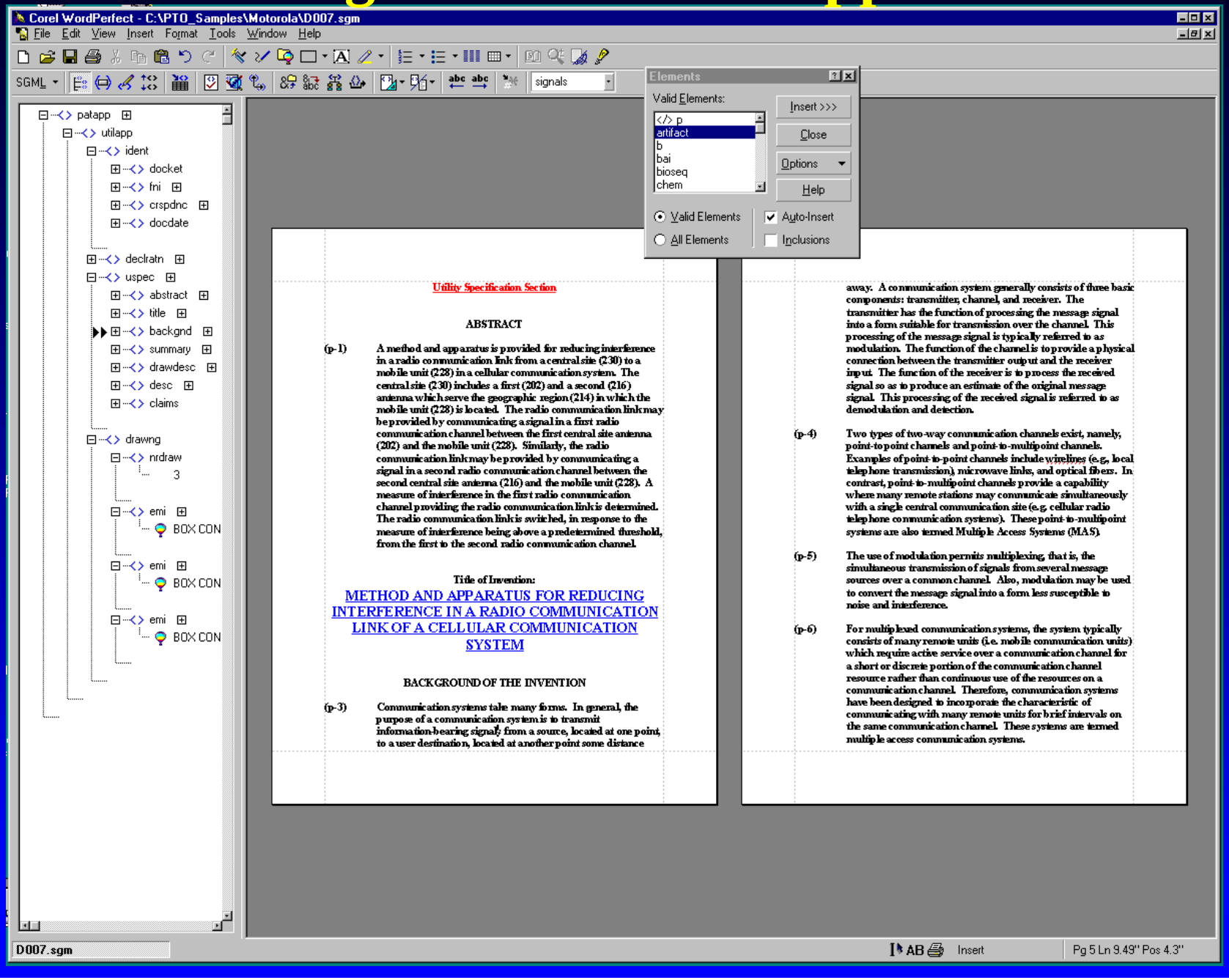
Internet-2

DOCT is COTS-based

- SGML authoring and document review
- Secure electronic filing prototype based on certificates, digital signature, encryption, and secure date-time stamping
- SGML Document Management at the element level with automated amendment processing
- Data-driven workflow with attached agents to perform classification, pre-search, etc.

Authoring SGML Patent Application

Corel WordPerfect 8



Authoring a Trademark AOU SGML Application

Corel WordPerfect - C:\PTO_SA~1\TRADEM~1\GARDEN\AOUSAM~1.SGM

File Edit View Insert Format Tools Window Help

Graphics

- AllegationOfUse
  - Allegation-Of-Use
  - Version
  - Name
  - Applicant-Address
    - Street-Address
    - City
    - State
    - Country
    - Zip-Code
    - Internet-Email-Address
  - Telephone-No
  - Mark
  - Mark
  - Mark
    - BOX CONTENT
  - Serial-Number
  - PTO-Provided-Req-To-Divide-App
  - PTO-Provided-AOU-Registrat-Req
  - Goods-Services-In-Use
  - Goods-Services-Deleted
  - Use-Dates
  - Applicant-Mode-Of-Use-Stmt
  - Type-Of-Commerce
  - Fee-Amount
  - Deposit-Account-Number
  - PTO-AOU-Declaration
  - Signature
  - Signatory-Name
  - Signatory-Position
  - Signatory-Telephone-No
  - Date-Signed

ALLEGATION OF USE FOR INTENT-TO-USE

Applicant Name:

Peat Moss
123 Lotus Streeet
Arlington , VA
USA 22202
pete@aol.com
Phone: 703-305-8988

MARK

Garden Gate

Gardening Garden Gate Quick Tip

Serial Number: 76123456

Request to Divide

Applicant wishes to proceed to publication or registration with certain goods/services on or in connection with which it has used the mark in commerce and retain an active application for any remaining goods/services; adivisional application and fee are required. 37 C.F.R. 2.87.

AOU Registration Request

Applicant requests registration of the above-identified trademark/service mark in the United States Patent and Trademark Office on the Principal Register established by the Act of July 5, 1946 (15 U.S.C. 1051 et seq., as amended). Three specimens per class showing the mark as used in commerce and the prescribed fees aresubmitted with this statement.

Date of First Use Anywhere: 04/05/1997
Date First Used in Commerce: 04/05/1997
Mode of Use: services
Type of Commerce: interstate
Fee Paid ($): 100

AOUSAM~1.SGM

AB Insert Pg 1 Ln 3.52" Pos 1"

Corel Word Perfect 8

View of SGML Patent Application

Panorama Pro

SoftQuad Panorama PRO

File Edit Options Styles Navigator Webs Bookmarks Help

- Identification
- Abstract of Disclosure
- Background of the Invention
- Summary of the Invention
- Detailed Description
- Claims
- Drawings

communication links between the central communication site and mobile communication unit when the mobile communication unit is located within a region served by more than one antenna operating in the same communication channel band.

Summary of the Invention

P-30

A method and apparatus is provided for reducing interference in a radio communication link from a central site to a mobile unit in a cellular communication system. The central site includes a first and a second antenna which serve the geographic region in which the mobile unit is located. The radio communication link may be provided by communicating a signal in a first radio communication channel between the first central site antenna and the mobile unit. Similarly, the radio communication link may be provided by communicating a signal in a second radio communication channel between the second central site antenna and the mobile unit. A measure of interference in the first radio communication channel providing the radio communication link is determined. The radio communication link is switched, in response to the measure of interference being above a predetermined threshold, from the first to the second radio communication channel.

Brief Description of the Drawings

FIG-1 ➡ A and FIG-1 ➡ B are block dia communication site antenna pattern. F showing a preferred embodiment centr FIG-3 ➡ A and FIG-3 ➡ B are block dia embodiment central communication si

Detailed Description

C:\PTO Samples\Motorola\D007.sgm | Beginner's Web

SoftQuad Panorama PRO

File Zoom Anchor

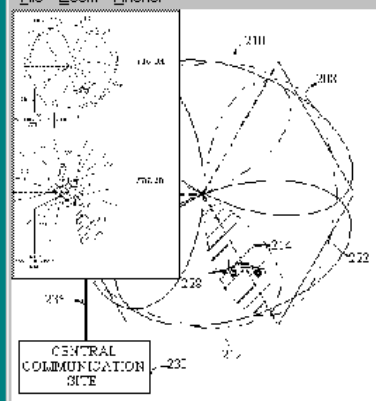


FIG. 2A

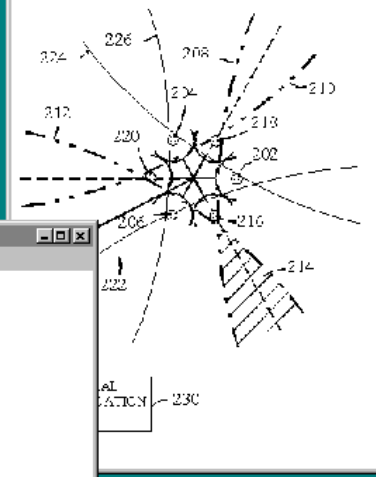


FIG. 2B

SoftQuad Panorama PRO

File Zoom Anchor

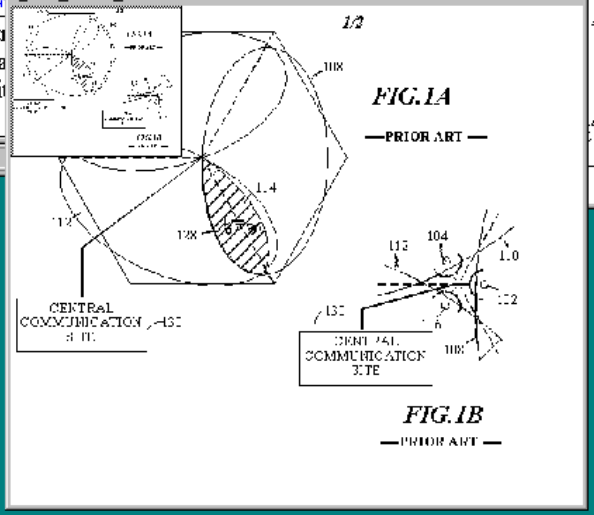


FIG. 1A
—PRIOR ART—

FIG. 1B
—PRIOR ART—

Shortcut to EC-Briefs

Shortcut to temp1

WinZip

Outlook Express

Shortcut to Golfball.tiff

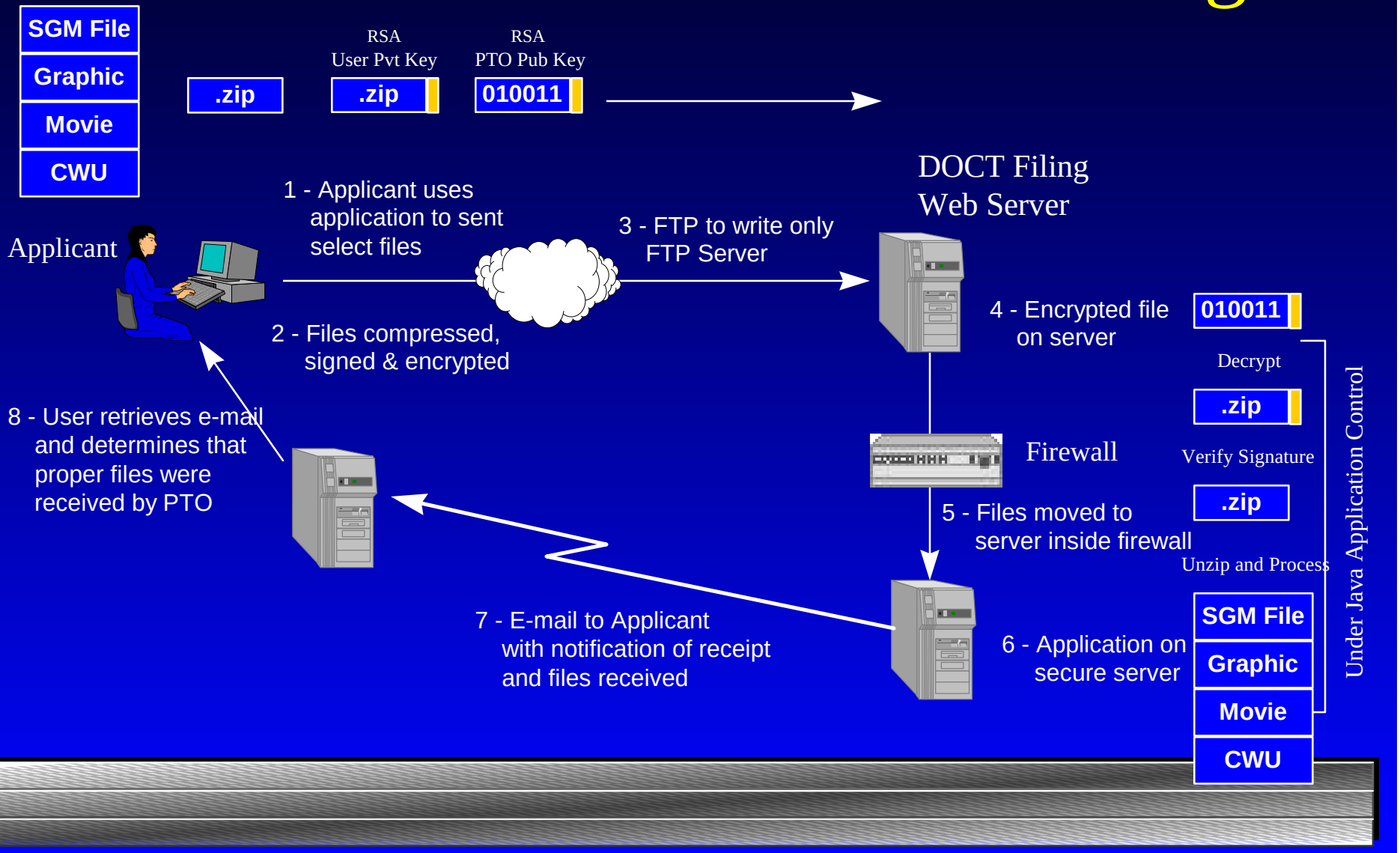
Shortcut to Golfball.sgm

Shortcut to Eqcaa010.0...

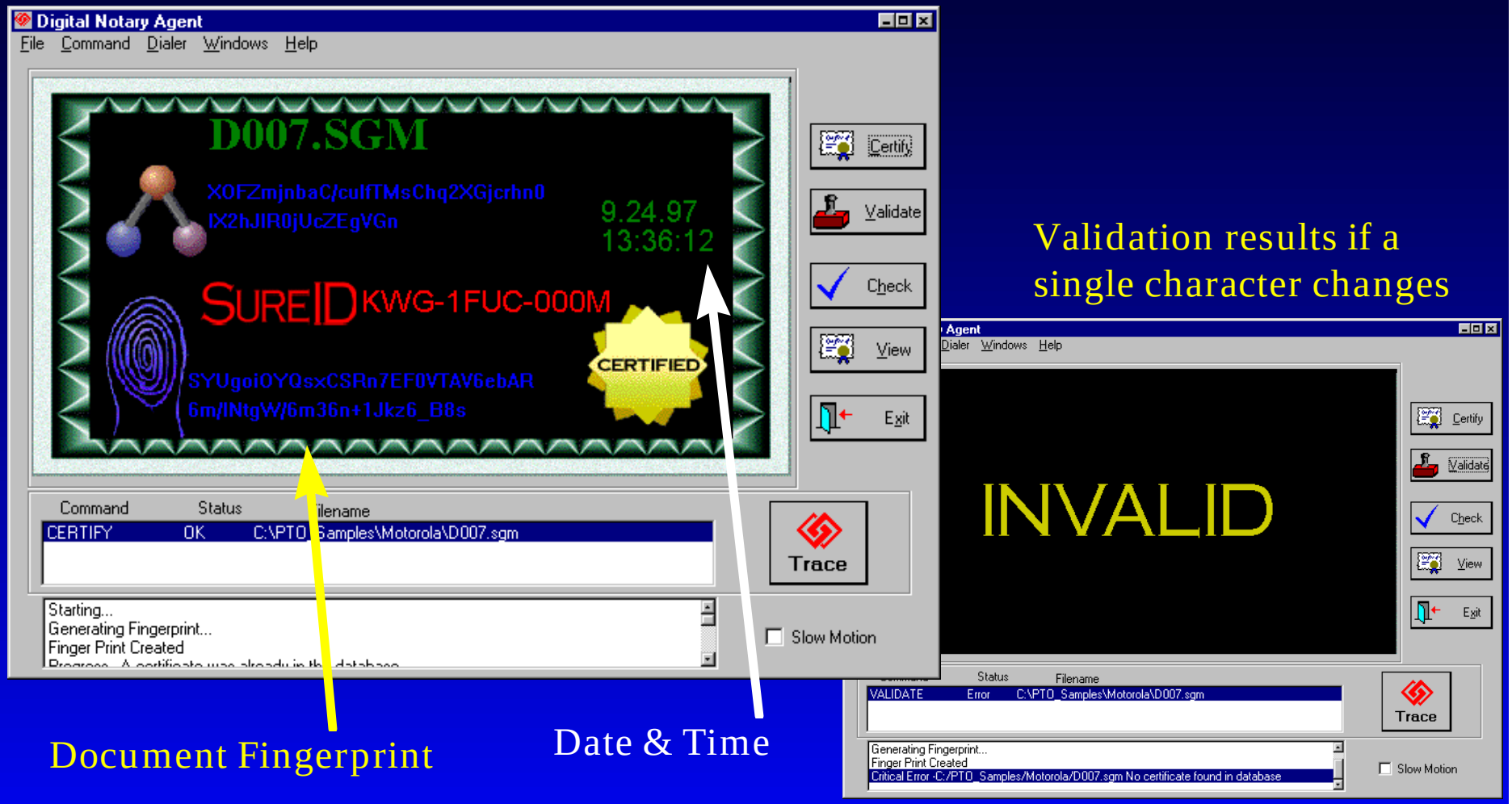
Shortcut to Validation

Shortcut to Surety.exe

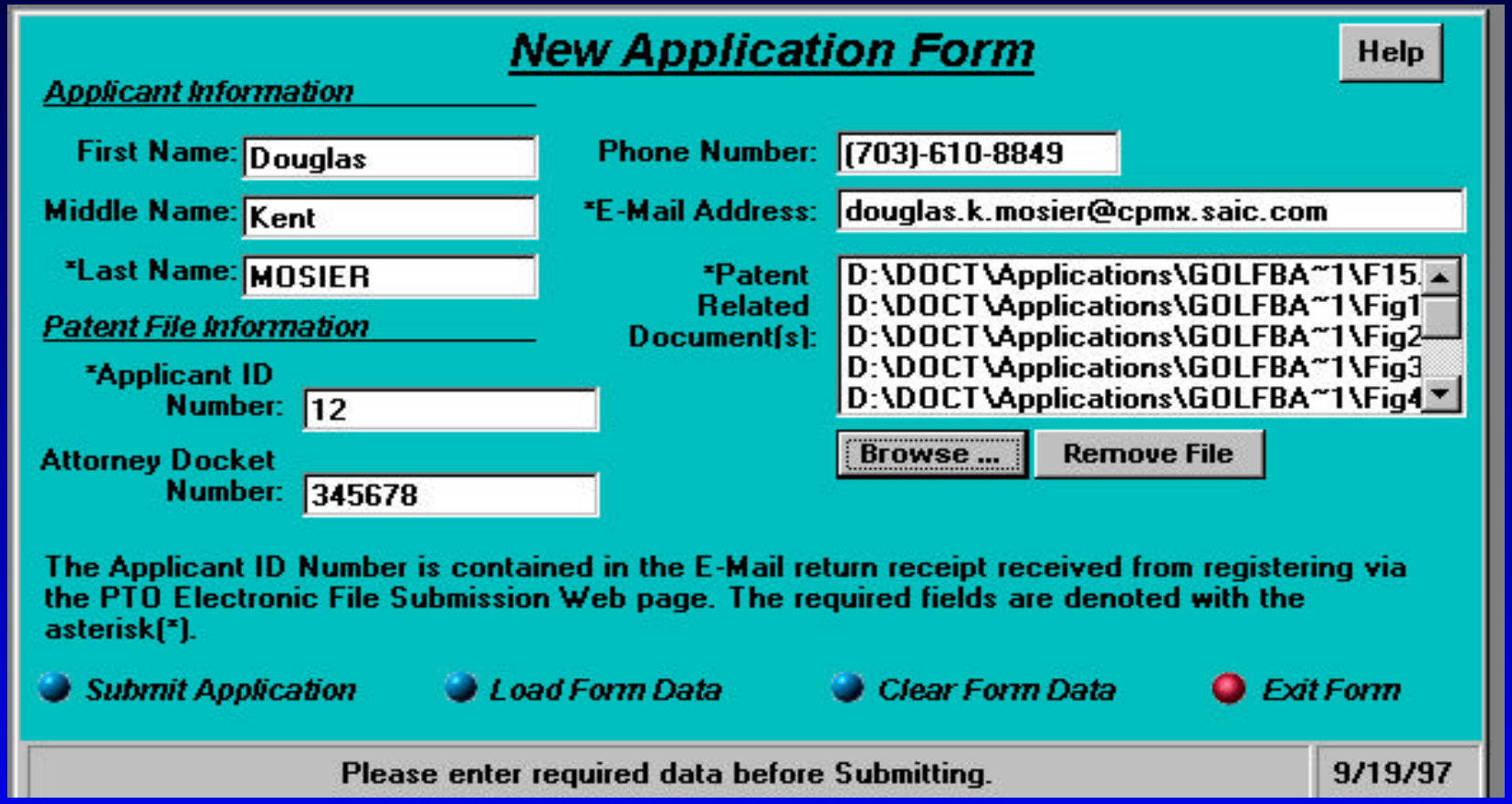
DOCT: Secure Electronic Filing



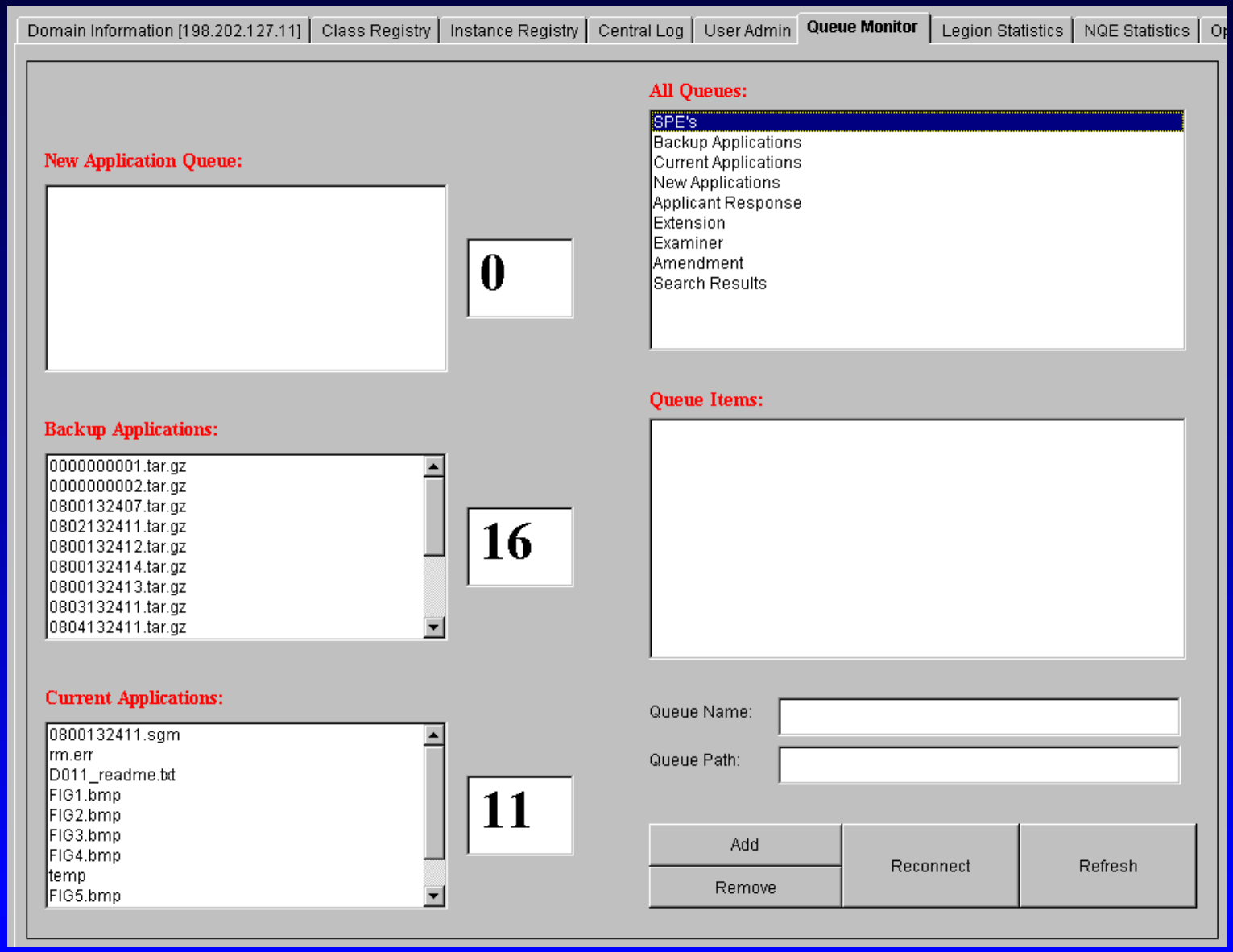
DOCT: Use of Secure Date-Time Stamp



DOCT: Secure Electronic Filing



Applications are Queued in the Electronic Mailroom



Automated E-Mail Receipts

Admin@doct.itsl.com

Wednesday, September 24, 1997 2:10:13 PM
Message

From: Admin@doct.itsl.com,Internet

Subject:

Bcc: Rick Klobuchar

The US Patent and Trademark Office received an electronically-filed patent application from Richard Klobuchar on 09/24/97 14:06:28 EDT.

The following files were included in the submission:

D007.ctf
D007.sgm
FIG1A&B.bmp
FIG2A&B.bmp
FIG3A&B.bmp

Received: from cphub.mail.saic.com (cphub.mail.saic.com [139.121.95.10]) by fcmail.amsec.com
Sep 1997 18:08:53 GMT
Received: from rommel.saic.com by cpmx.mail.saic.com; Wed, 24 Sep 97 11:09:29 -0700
Received: from Macemaster.issg.saic.com/149.8.27.44 by rommel. (SMI-8.6/SMI-SVR4) id OAA0
-0400

Electronic Filing Receipt

Data Validation Receipt

Validation Mechaism Receipt

Unsent Message

From: Rick Klobuchar
admin@doct.itsl.com,Internet

Subject: Validation Mechaism Receipt

To: Rick Klobuchar

Cc:

Your electronically-filed patent application package has been reviewed.

Title: METHOD AND APPARATUS FOR REDUCING INTERFERENCE IN A RADIO COMMUNICATION LINK OF A CELLULAR COMMUNICATION SYSTEM

Inventor: Reuven Meidan

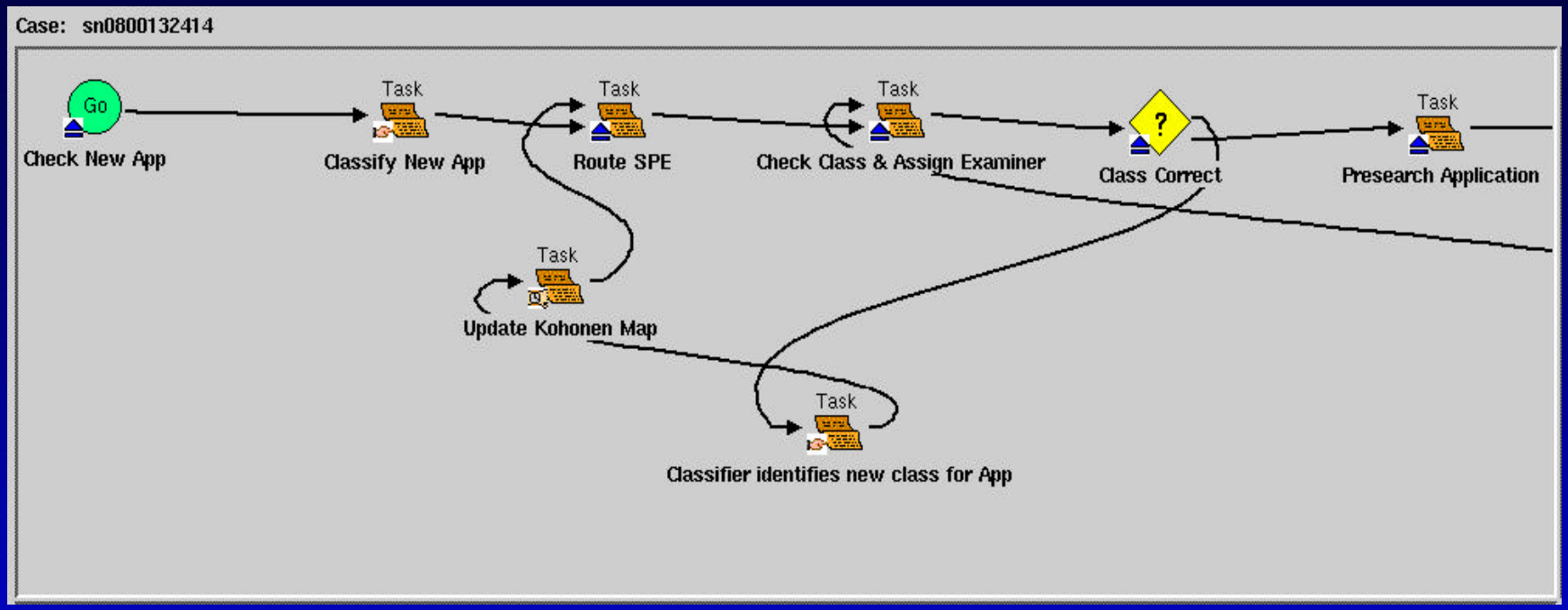
Docket Number: CE02285R

It has been given the following application number: 08/304750.

Please use this number in all correspondence referring to this application.

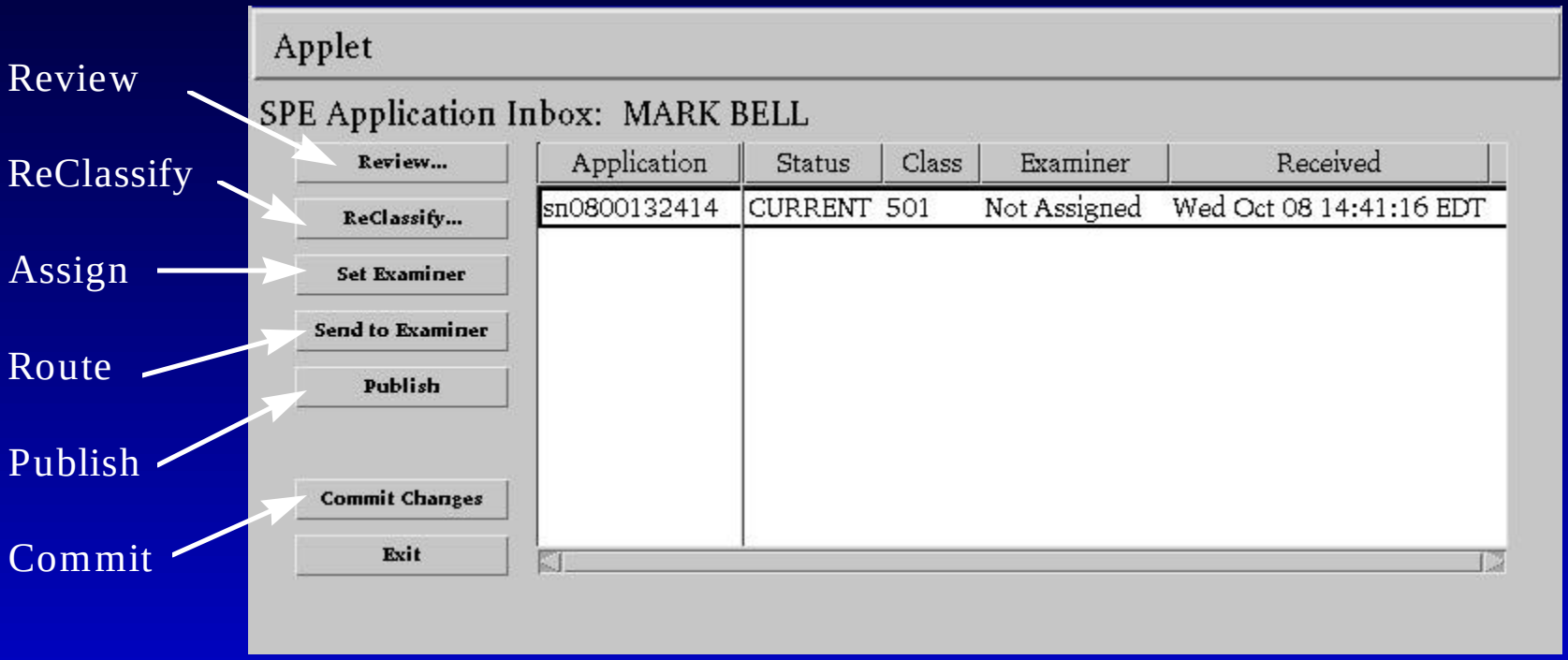
Your graphics files have been reviewed. Below is a list of the file names and the outcome of each review. A REJECT means that the file could not be viewed and should be resubmitted in an amendment.
FIG1A&B.bmp - ACCEPTED
FIG2A&B.bmp - ACCEPTED
FIG3A&B.bmp - ACCEPTED

DOCT: Data-Driven Workflow with Agents



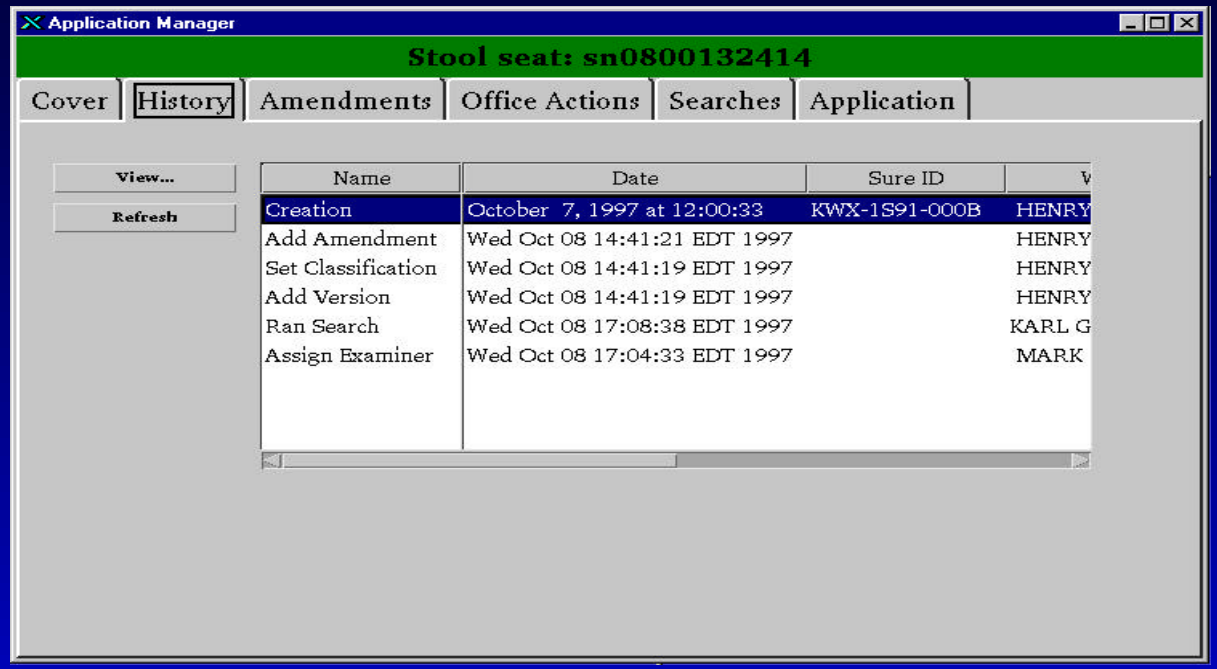
Agents for classification, examiner assignment support, examination pre-search, automated amendment processing, etc.

DOCT: Java-based Agents



After presumptive classification, the application is routed to the SPE in charge of the relevant Art Group for assignment to an examiner

DOCT: SGML Document Management



Documents managed in an Electronic File Wrapper (EFW) based on an SGML-based Document Management System.

- Each application has an EFW which contains:
  - A cover with all high level data on the application
  - Surety Date/Time-stamped historic record of all actions performed and
  - Amendments to the application
  - Office Actions created
  - Searches and search results
  - Application versions

Demonstrations (Alexandria Room)

10:00 - 12:00	DOCT Demonstrations
1:00 - 2:30	PICS / ACRS / PAIR / EPAFS Demonstrations
2:30 - 4:00	DOCT Demonstrations

DOCT Morning Schedule (approx.)
10:00 Introduction to DOCT and Applicant Authoring
10:30 Secure Electronic Filing and Electronic Mailroom
11:00 Workflowand Application Management
11:30 Search & Retrieval

Afternoon schedule: same order (compressed)

Summary

- USPTO is actively working towards fully-electronic operations, including a fully-electronic dialog with applicants
- Initial systems and pilot projects are under way
- Research efforts will identify useful technologies and approaches
- Legal, rules, and incentives issues must be resolved